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AUTHOR Latkovich, Sharon A.
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ABSTRACT

The Child Behavior Checklist (CBCL) is used to assess the behavioral problems and social competencies of children. Its broad usage in both practitioner and research contexts has led to misapplications as compared to the CBCL's original intended purpose. In addition, the composition of the normative sample presents particular difficulties for establishing validity across different groups. Given the broad use of the CBCL and its potential validity biases, this study assessed its construct validity for African American children to determine whether the CBCL provides assistance in their diagnosis and treatment. Factor analysis was used to determine the underlying factor structure of the CBCL profiles. Factor structures derived were compared through RELATE, a Kaiser factor matching estimation program. Subjects were 2,971 children aged 6 to 16 coming to a child guidance center in a northeastern Ohio city. Slightly more than half of the sample (56%) was male. Of these students, 677 (23%) were black. Data did not support the claim that there is a difference in total behavior problem scores between African American and white children except for the group of girls aged 6 to 11, in which scores of black and white girls were different. Total social competence scores were similar for black and white children aged 6 to 11 or aged 12 to 16. Data provided no evidence to support the claim that factor structures are different for blacks and whites. Test results support the construct validity of the CBCL for black children. An appendix contains the CBCL. (Contains 14 tables and 28 references.) (SLD)

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Running Head: CONSTRUCT VALIDITY OF THE CHILD BEHAVIOR CHECKLIST

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Sharon A. Latkovich

Ashland University

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An Empirical Test of the Construct Validity of the Child Behavior Checklist

Abstract

The Child Behavior Checklist (CBCL) is used to assess the behavioral problems and social competencies of children. Its broad usage in both a practitioner and research context has led to misapplications as compared to the CBCL's original intended purpose. Additionally, the composition of the normative sample presents particular difficulties for establishing validity across different groups. Thus given the broad usage of the CBCL combined with potential validity biases, it is the purpose of this study to assess the construct validity of the CBCL for African American children. Such an examination would identify and document whether the CBCL instrument, as a whole or in parts, provides significant assistance in diagnosis and treatment for black children, a population on which the instrument is frequently used.

Objectives

The Child Behavior Checklist (CBCL) was developed by Achenbach and Edelbrock to "record in a standardized format the behavioral problems and competencies of children [ages 4 to 16] as reported by their parents or others who know the child well" (Kramer & Conoley, 1992, p. 36). Yet, the nomothetic nature of the CBCL precludes adequate differentiation for children who differ from the norm.

In other words, the image of strong validity is deceiving as the normative sample on which the CBCL was originally developed was composed of over 80% white children and over 80% maternal informants. This decidedly white sample poses a striking contrast to the client load of community mental health agencies, where a disproportionate percentage of their clients are black children.

Therefore, an examination of the construct validity of the CBCL for African American children would assist researchers in child behavior to identify and document whether the CBCL instrument, as a whole or in parts, provides significant assistance in diagnosis and treatment for black children, a population on which the instrument is frequently used.

Perspective/Theoretical Framework

Construct validity concentrates on an evaluation of the original theoretical underpinnings or constructs of a test instrument. Additionally, the instrument must measure the theoretical construct the same for each group on which it is used (Moran, 1990). These underlying theoretical constructs are often assessed using principal

components analysis. Indeed, the narrow band syndromes of the CBCL were developed using principal components, with minimum factor loadings of .30.

However, the normative sample was based on a population of clinically referred children which could possibly jeopardize the CBCL's validity in certain situations (Jensen, Traylor, Xenakis, & Davis, 1988b). Also, the replication studies "are most often based on boys; important sex differences are evident for certain syndromes" (Barnett & Zucker, 1990, p. 63). Consequently, the stability and replicability of the factor structure might be questionable. Therefore, Emerson, Crowley, & Merrell (1994) issued a call for further research on this issue of factor structure stability.

A compelling case can be made for the study of differential construct validity by various race and ethnic groups (Moran, 1990; Emerson et al., 1994; Drotar, Stein, & Perrin, 1995). Drotar et al. (1995) even go so far as to comment that while the normative sample was chosen to represent the overall U.S. population, the norms are not equally applicable when applied to those children who are underrepresented in the sample, a point also made by Hill, Billingsley, Engram, Malson, Rubin, Stack, Stewart, and Teele (1993) in reference to the black community.

Yet, Kelley (1985) refers broadly to the research support of the CBCL's construct validity without mention of any specific studies. However, Mooney (1984) rectifies this error, citing the work of Weissman, Orvaschel, and Padian; Hodges, McKnew, Cytryn, Stern, and Klein; Hazzard, Christensen, and Margolin; Last and Bruhn. Of these studies, most dealt with the singular construct validity of the total behavior problem score of the CBCL, as opposed to the CBCL's social competence scales.

Importance of the Study

The Child Behavior Checklist (CBCL) is used to assess the behavioral problems and social competencies of children. Its broad usage in both a practitioner and research context has led to misapplications as compared to the CBCL's original intended purpose. Practical applications vary from the more traditional mental health centers and medical contexts to schools and forensic applications. T. M. Achenbach (personal communication, February, 1995) has claimed that "one million [CBCL test instruments] are used each year." Furthermore, an exhaustive number of citations of the CBCL can be found in the research literature. For example, Perrin, Stein, and Drotar (1991) have referred to the CBCL as "the gold standard" in behavioral research on children; they refer to the tremendous number of citations of the CBCL in the Journal of Pediatric Psychology.

These current uses of the CBCL most probably do not coincide with the original intent or purpose of the CBCL. Additionally, the composition of the normative sample presents particular difficulties for establishing validity across different groups. The norms are not equally applicable when applied to those children who are underrepresented in the sample. Thus, the importance of this study lies in its assessment of the CBCL's construct validity given its broad usage across different groups, especially those that differ dramatically from the normative sample.

Methodology

Factor analysis was used to determine the underlying factor structure for the CBCL profiles. In the principal components method, the first factor extracted accounts

for the most variance; the second factor extracted accounts for the next largest amount of variance; and so on (Dillon & Goldstein, 1984).

An orthogonal factor rotation was selected for the following reasons: (1) Orthogonal rotations are the required method for the Kaiser factor matching procedure (Veldman, 1967); (2) The orthogonal rotation method is better to use if one wants to add factors together for predictive purposes since oblique rotations result in multicollinearity and multicollinearity results in unstable beta weights (Harmen, 1967); (3) If no intercorrelations exist, then an orthogonal solution would be the same as an oblique solution (Newman, 1971).

The orthogonal rotation method used was a varimax rotation. The varimax method "maximizes the sum of variances of required loadings of the factor matrix, producing high factor loadings" (Hair, Anderson, & Tatham, 1987, p. 245). As a result of high factor loadings, the columns of the factor matrix are simplified and factor interpretation is facilitated. Additionally, a varimax rotation tends to be more invariant when different subsets of variables are used (Hair et al., 1987).

The resultant factor structures were compared through the use of RELATE, Veldman's (1967) Kaiser factor matching estimation program. According to Galligman and Newman (1983):

> This program uses as input the orthogonal factor-loading matrices derived for two samples from the exact same set of items (tests). The origins and factor-vector orientations for the two structures are equated. One of the factor spaces is then rotated to maximize the degree of overlap between corresponding test

> vectors in the two structures. The output expresses the degree of rotation of the space as a matrix of cosines of the angles between all pairs of factor axes in the two structures. These cosines are interpretable as correlations between the factors in the two structures (p. 2).

A value of .80 has been recommended as a cutoff score for cosines (Galligman & Newman, 1983; Newman, 1971). Above the cutoff of .80, cosines are interpreted as indicating similar factors; below the cutoff of .80, cosines are interpreted as indicating dissimilar factors. Therefore, similarity between factor structures was operationally defined to exist when those cosines greater than .80 corresponded to factor axes accounting for most of the variation in the factor matrix.

Thus, Kaiser factor matching will be used to evaluate the following general hypotheses:

1. **The underlying factor structure for black children is different as compared to the normative population.**
2. The underlying factor structure for black children is different as compared to white children in the sample.

The subjects (N = 2,971) for this study were chosen from the population of those coming to a child guidance center for treatment in a Northeastern Ohio city. The pre-1991 version of the CBCL was administered to the parent or guardian who brought the child in for treatment (see Appendix A). Data collection was done as part of the normal initial assessment process of the agency from April 1991 through August 1993.

The mean age in the sample was 10.64, with 11% of the subjects (N = 336) between the ages of 4 and 5, 44% (N = 1,310) between the ages of 6 to 11 years old, 41% (N = 1,205) between 12 and 16 years old, and 4% (N = 120) between 17 and 18 years old. Slightly more than half of the sample was male (N = 1,683, 56%), which mirrors the gender demographics of the agency (Bender, 1994).

The sample, like the community and the agency population, was predominantly European American. 67% of the subjects (N =2,002) were white; 23% (N = 677) were black; 1.6% (N = 48) were of mixed race; 0.2% (N = 6) were Asian American; 0.07% (N = 2) were Hispanic; and the remaining 8% (N = 236) were not identified. However, the relative percentage of African Americans receiving agency services (and in the sample) is double their representation in the community at large (U.S. Census, 1990).

The SES of the subjects was generally low, with 50% coming from homes where the income level was less than $5,000, and 75% with incomes less than $15,000. This is contrary to the overall SES breakdown of the community where over 89% had an income greater than $15,000. Therefore, the sample and the agency represents a disproportionate share of the African American and low SES segments of the urban community (U.S. Census, 1990).

The criteria for including subjects in this study were as follows:

1. The individual was presented for treatment at a child guidance center in Northeastern Ohio during the time period April 1991 through August 1993.
2. The individual was at least four years of age, but no more than 18 years of age.

3. The scored data format of the CBCL instrument indicated that no errors were encountered in scoring the case.

Results

1. The underlying factor structure for black children is different as compared to the normative population.

    1.1 The underlying factor structure of the total behavior problem scores for African American boys ages 6 to 11 is different as compared to the normative population.

Reported findings in Table 1 and Table 2 are the data related to the testing of the first research hypothesis. The cosine for the first axis for both solutions came extremely close to meeting this cutoff at 0.7784. The cosine for the ninth normative axis and the ninth African American axis was -0.8125. Other cosines that met the cutoff value of 0.80 were: -0.8607 (normative axis 9, African American axis 1), 0.8031 (normative axis 6, African American axis 2), 0.7973 (normative axis 8, African American axis 3), 0.8978 (normative axis 2, African American axis 4), and 0.8897 (normative axis 5, African American axis 8). None of the other cosines for this factor matching exceeded an absolute value of 0.75.

Therefore given the first two normative factors were found to be similar (in addition to the fifth, sixth, eighth, and ninth normative factors) and that the first factor extracted accounts for the most variance, the second the next largest amount of variance, and so on (Dillon & Goldstein, 1984), it was determined that the data did not support the research hypothesis. The data did not support the claim that there is a

difference in total behavior problem scores between African American boys ages 6 to 11 and the corresponding normative solution.

Table 1

Results for Hypothesis 1.1: Cosines Indicating Similarity Among Factor Axes of the Total Behavior Problem Scores for Boys Ages 6 to 11

Norm-	African American Rotated Factor Structure[a]								
ative	1	2	3	4	5	6	7	8	9
1	0.7784*	-0.0161	-0.1108	-0.0447	0.3426	0.0342	-0.2548	0.1760	-0.0475
2	0.1800	0.3634	0.0401	0.8978*	-0.0938	0.4401	0.2062	-0.0383	0.3257
3	0.1646	0.1341	0.1714	0.1728	0.4810	-0.4184	0.7308	-0.2139	0.0194
4	0.3478	0.5373	0.4057	-0.3815	-0.0271	0.5922	0.4648	0.0567	0.3962
5	-0.0847	0.0786	0.3135	0.1247	-0.1042	-0.2234	0.1439	0.8897*	0.0088
6	-0.2197	0.8031*	-0.0618	-0.0950	0.0055	-0.2667	-0.2926	-0.1138	-0.2790
7	0.3358	-0.1025	0.3852	0.0469	-0.6397	-0.1368	0.1078	-0.2423	-0.4625
8	-0.1302	-0.0957	0.7973*	0.1148	0.3317	0.0339	-0.3909	-0.1899	0.1678
9	-0.8607*	-0.6465	-0.3136	-0.4139	0.0847	0.2021	-0.0584	-0.0537	-0.8125*

Note. Kaiser Factor Matching was used to compare the two factor structures.

[a]* represents those cosines at or above 0.80 among the respective factor axes.

Table 2

Underlying Factor Axes of the Total Behavior Problem Scores for Boys Ages 6 to 11

Factor Axes	Normative
1	Aggressive
2	Depressed
3	Delinquent
4	Obsessive
5	Hyperactive
6	Somatic complaints
7	Social withdrawal
8	Uncommunicative
9	Schizoid-Anxious

1.2 The underlying factor structure of the total behavior problem scores for African American boys ages 12 to 16 is different as compared to the normative population.

Reported findings in Tables 3 and 4 are the data related to the testing of the second research hypothesis. Cosines that met the cutoff value of 0.80 were: 0.8192 (normative axis 5, African American axis 1), 0.8926 (normative axis 1, African American axis 2), 0.8096 (normative axis 8, African American axis 4), and 0.9216 (normative axis 3, African American axis 5). None of the other cosines for this factor matching exceeded an absolute value of 0.75.

Table 3

Results for Hypothesis 1.2: Cosines Indicating Similarity Among Factor Axes of the Total Behavior Problem Scores for Boys Ages 12 to 16

Norm-	African American Rotated Factor Structure[a]					
ative	1	2	3	4	5	6
1	-0.0029	0.8926*	0.1774	0.0763	-0.2741	0.1149
2	0.3457	-0.2672	0.5445	0.2530	0.1578	0.5148
3	-0.0884	0.2956	-0.1559	0.1402	0.9216*	0.0044
4	0.3318	0.1632	0.0915	-0.1745	-0.0192	0.2551
5	0.8193*	0.0452	-0.2268	-0.1536	0.0362	-0.3856
6	0.0815	0.0928	0.6073	-0.3809	0.2052	-0.2574
7	0.2742	0.0776	-0.4024	0.2349	-0.0268	0.4475
8	0.0918	0.0126	0.2217	0.8096*	-0.0766	-0.4368
9	-0.0401	0.0130	0.0989	-0.0198	-0.0172	0.2231

Note. Kaiser Factor Matching was used to compare the two factor structures.

[a]* represents those cosines at or above 0.80 among the respective factor axes.

Therefore given the first, third, fifth, and eighth normative factors were found to be similar and that these axes account for the majority of the variance, it was determined that the data did not support the research hypothesis. The data did not support the claim that there is a difference in total behavior problem scores between African American boys ages 12 to 16 and the corresponding normative solution.

Table 4

Factor Axes of the Total Behavior Problem Scores for Boys Ages 12 to 16

Factor Axes	Normative
1	Aggressive
2	Somatic complaints
3	Delinquent
4	Withdrawal
5	Uncommunicative
6	Hyperactive
7	Schizoid
8	Obsessive-compulsive
9	Immature

1.3 The underlying factor structure of the total behavior problem scores for African American girls ages 6 to 11 is different as compared to the normative population.

Reported findings in Tables 5 and 6 are the data related to the testing of the third research hypothesis. The cosine for the first axis for both solutions met this condition with a value of 0.9664. The other cosines that met or came close to the cutoff value of 0.80 were 0.7520 (normative axis 4, African American axis 3) and 0.8959 (normative axis 2, African American axis 5). None of the other cosines for this factor matching exceeded an absolute value of 0.75.

Table 5

Results for Hypothesis 1.3: Cosines Indicating Similarity Among Factor Axes of the Total Behavior Problem Scores for Girls Ages 6 to 11

Norm-	African American Rotated Factor Structure[a]					
ative	1	2	3	4	5	6
1	0.9664*	0.0085	0.0484	0.1198	0.0808	0.0856
2	-0.0903	0.3768	0.0771	0.0999	0.8959*	0.0308
3	-0.0729	-0.0430	-0.0884	0.7047	-0.1085	0.3580
4	-0.0979	-0.1236	0.7520*	-0.1840	0.0479	0.4470
5	-0.0074	0.3440	0.4899	0.1864	-0.2261	-0.6460
6	-0.0513	0.1706	0.2589	0.5188	-0.1408	0.1376
7	-0.0107	0.7795*	-0.2552	-0.1014	-0.2140	0.1954
8	0.0872	0.2917	0.1429	-0.3507	-0.2394	0.3798
9	0.1796	0.0259	0.1604	-0.0891	0.0504	-0.2133

Note. Kaiser Factor Matching was used to compare the two factor structures.

[a]* represents those cosines at or above 0.80 among the respective factor axes.

Therefore given only the first second and fourth normative factors were found to be similar and that these axes did not account for a majority of the variance, it was determined that the data supported the research hypothesis. The data supported the claim that there is a difference in total behavior problem scores between African American girls ages 6 to 11 and the corresponding normative solution.

Table 6

Underlying Factor Axes of the Total Behavior Problem Scores for Girls Ages 6 to 11

Factor Axes	Normative
1	Aggressive
2	Depressed
3	Hyperactive
4	Somatic complaints
5	Schizoid-obsessive
6	Social withdrawal
7	Delinquent
8	Sex problems
9	Cruel

1.4 The underlying factor structure of the total behavior problem scores for African American girls ages 12 to 16 is different as compared to the normative population.

Reported findings in Tables 7 and 8 are the data related to the testing of the fourth research hypothesis. The first was the cosine for the first axis for both solutions, at a value of 0.8109. The second was the cosine for the second axis for both solutions, at a value of 0.8638. The other cosines that met the cutoff value were: 0.8599 (normative axis 5, African American axis 3), and 0.9561 (normative axis 6, African American axis 4), 0.8279 (normative axis 4, African American axis 5).

Given the first, second, fourth, fifth, and sixth factors were found to be similar and that these axes accounted for the majority of the variance, it was determined that the data clearly did not support the research hypothesis. The data did not support the claim that there is a difference in total behavior problem scores between African American girls ages 12 to 16 and the corresponding normative solution.

Table 7

Results for Hypothesis 1.4: Cosines Indicating Similarity Among Factor Axes of the Total Behavior Problem Scores for Girls Ages 12 to 16

Norm-	African American Rotated Factor Structure[a]					
ative	1	2	3	4	5	6
1	0.8109*	0.2393	-0.1563	-0.0036	0.0740	-0.2484
2	0.0455	0.8638*	0.2544	0.1122	-0.1745	0.2189
3	0.5604	-0.3492	0.1170	0.0357	0.1339	0.2371
4	-0.1020	0.1306	0.0688	0.1809	0.8279*	0.0901
5	0.0106	-0.1055	0.8599*	0.0503	0.0837	-0.4436
6	0.0138	-0.1292	-0.0249	0.9561*	-0.1452	0.1228
7	-0.0472	0.0740	-0.0455	-0.0734	0.4500	0.3197
8	0.1211	-0.1578	0.3864	-0.1749	-0.1938	0.7103

Note. Kaiser Factor Matching was used to compare the two factor structures.

[a]* represents those cosines at or above 0.80 among the respective factor axes.

Table 8

Underlying Factor Axes of the Total Behavior Problem Scores for Girls Ages 12 to 16

Factor Axes	Normative
1	Aggressive
2	Anxious-obsessive
3	Delinquent
4	Immature-hyperactive
5	Depressed-withdrawal
6	Somatic complaints
7	Cruel
8	Schizoid

Almost across the board, the data failed to support the research hypothesis of a difference in total behavior problem scores between African Americans and the normative population, with the notable exception for girls ages 6 to 11.

2. The underlying factor structure for black children is different as compared to white children in the sample.

2.1 The underlying factor structure of the total social competence scores for black children ages 6 to 11 is different as compared to the white children ages 6 to 11 in the sample.

Reported findings in Table 9 are the data related to the testing of the fifth research hypothesis. Cosines that met the criteria were the first axis (0.9565), and the

second axis (0.9843). Other cosines that met the cutoff value of 0.80 were: 0.9601 (black axis 6, white axis 4) and 0.9725 (black axis 4 , white axis 5). None of the other cosines for this factor matching exceeded an absolute value of 0.75.

Thus, the first two African American factors were found to be similar, along with the fourth and sixth factors. With the first African American factor accounting for the most variance, the second the next most amount of variance, it was determined that the data failed to support the research hypothesis. The data did not support the claim that there is a difference in total social competence scores between black children as compared to the white children ages 6 to 11 in the sample.

Table 9

Results for Hypothesis 2.1: Cosines Indicating Similarity Among Factor Axes of the Total Social Competence Scores for Ages 6 to 11

Black	Rotated Factor Structure for White Children[a]					
	1	2	3	4	5	6
1	0.9565*	0.1196	0.0496	-0.1888	0.0169	0.1812
2	-0.1470	0.9843*	-0.0118	-0.0884	0.0196	0.0362
3	-0.1470	-0.0305	0.7117	0.0493	-0.1480	0.6684
4	-0.0241	-0.0175	0.0120	0.1356	0.9725*	0.1867
5	0.0645	0.0299	0.6983	-0.1174	0.1419	-0.6878
6	0.1929	0.1216	0.0555	0.9601*	-0.1075	-0.1058

Note. Kaiser Factor Matching was used to compare the two factor structures.

[a]* represents those cosines at or above 0.80 among the respective factor axes.

2.2 The underlying factor structure of the total social competence scores for black children ages 12 to 16 is different as compared to the white children ages 12 to 16 in the sample.

Reported findings in Table 10 are the data related to the testing of the sixth research hypothesis. The cosine for the first axis for both solutions had a value of 0.9675. The cosine for the second axis for both solutions had a value of 0.9787. Other cosines that met the cutoff value of 0.80 were: 0.9563 (black axis 5, white axis 3), 0.9458 (black axis 6, white axis 4), 0.9432 (black axis 4, white axis 5), and 0.9626 (black axis 3, white axis 6). None of the other cosines for this factor matching exceeded an absolute value of 0.75.

Table 10

Results for Hypothesis 2.2: Cosines Indicating Similarity Among Factor Axes of the Total Social Competence Scores for Ages 12 to 16

Black	Rotated Factor Structure for White Children[a]					
	1	2	3	4	5	6
1	0.9675*	0.1564	-0.0794	-0.0029	0.1798	0.0311
2	-0.1357	0.9787*	-0.0128	-0.0533	-0.1356	0.0467
3	-0.0059	-0.0368	0.1656	0.2094	-0.0265	0.9626*
4	-0.2053	0.1094	-0.1506	0.1824	0.9432*	0.0151
5	0.0521	0.0557	0.9563*	0.1597	0.1297	-0.1933
6	0.0275	0.0332	-0.1701	0.9458*	-0.2051	-0.1807

Note. Kaiser Factor Matching was used to compare the two factor structures.

[a]* represents those cosines at or above 0.80 among the respective factor axes.

Therefore given all six African American factors were found to be similar, it was determined that the data failed to support the research hypothesis. The data did not support the claim that black children were different in total social competence scores as compared to the white children ages 12 to 16 in the sample.

2.3 The underlying factor structure of the total behavior problem scores for black children ages 6 to 11 is different as compared to the white children ages 6 to 11 in the sample.

Reported findings in Table 1[illegible] are the data related to the testing of the seventh research hypothesis. The cosine for the fourth axis for both solutions had a value of 0.9434. Also, the cosine for the fifth axis had a value of 0.9101. The cosine for black axis 2 and white axis 3 had a value of 0.9540. The only other cosine that met the cutoff value of 0.80 was 0.9002, (black axis 3, white axis 6). None of the other cosines for this factor matching exceeded an absolute value of 0.75.

Given that the second, third, fourth, and fifth African American factors were found to be similar and that these axes accounted for the majority of the variance, it was determined that the data did not support the research hypothesis. The data did not support the claim that black children were different in total behavior problem scores as compared to the white children ages 6 to 11 in the sample.

Table 11

Results for Hypothesis 2.3: Cosines Indicating Similarity Among Factor Axes of the Total Behavior Problem Scores for Ages 6 to 11

Black	Rotated Factor Structure for White Children[a]					
	1	2	3	4	5	6
1	0.7030	0.6415	-0.1052	-0.1515	0.1873	-0.1587
2	0.1364	0.0718	0.9540*	0.0398	-0.2452	-0.0655
3	-0.0046	0.3258	-0.0062	0.2583	-0.1301	0.9002*
4	0.0271	0.0717	-0.0231	0.9434*	0.1726	-0.2717
5	0.0184	-0.2040	0.2658	-0.0788	0.9101*	0.2300
6	0.6973	-0.6561	-0.0867	0.1120	-0.1725	0.1833

Note. Kaiser Factor Matching was used to compare the two factor structures.

[a]* represents those cosines at or above 0.80 among the respective factor axes.

2.4 The underlying factor structure of the total behavior problem scores for black children ages 12 to 16 is different as compared to the white children ages 12 to 16 in the sample.

Reported findings in Table 12 are the data related to the testing of the eighth research hypothesis. The cosine for the first axis for both solutions had a value of 0.9781. The cosine for black axis 3 and white axis 2 was 0.8230, and the cosine for black axis 4 and white axis 3 was 0.9909. Other cosines that approached the cutoff value of 0.80 in Table 39 were: 0.7798 (black axis 6, white axis 4) and 0.7845 (black axis 2, white axis 6). None of the other cosines for this factor matching exceeded an absolute value of 0.75.

Given that the first, second, third, fourth, and sixth African American factors clearly were similar and that these axes accounted for the majority of the variance, it was determined that the data did not support the research hypothesis. The data did not support the claim that black children were different in total behavior problem scores as compared to the white children ages 12 to 16 in the sample.

Table 12

Results for Hypothesis 2.4: Cosines Indicating Similarity Among Factor Axes of the Total Behavior Problem Scores for Ages 12 to 16

Black	Rotated Factor Structure for White Children[a]					
	1	2	3	4	5	6
1	0.9781*	0.0038	0.0019	0.0788	0.0778	-0.1839
2	0.1317	0.4150	-0.0415	-0.1814	0.4043	0.7845*
3	-0.0161	0.8230*	0.0734	0.2814	-0.4668	-0.1251
4	0.0164	-0.0290	0.9909*	-0.1328	0.0163	0.0289
5	-0.1735	0.1836	0.0713	0.5027	0.7470	-0.3394
6	0.0499	-0.3301	0.0860	0.7798*	-0.2279	0.4727

Note. Kaiser Factor Matching was used to compare the two factor structures.

[a]* represents those cosines at or above 0.80 among the respective factor axes.

2.5 The underlying factor structure of the total CBCL profiles for black children ages 6 to 11 is different as compared to the white children ages 6 to 11 in the sample.

Reported findings in Table 13 are the data related to the testing of the ninth research hypothesis. The cosine from the third axis was 0.9387. Other cosines that

met the cutoff value of 0.80 were: 0.9717 (white axis 1, black axis 2) and 0.9387 (white axis 2, black axis 1). These axes account for the majority of the variance.

Such evidence led the researcher to determine that the data did not support the research hypothesis. With the first three African American factors found to be similar, in addition to the fact that the first factors account for the most variance, it is clear that the data provided minimal to no evidence to support the research hypothesis of a difference in the factor structures. The data plainly did not support the claim that black children were different in total CBCL profiles as compared to the white children ages 6 to 11 in the sample. Also, the corresponding sets of factor loadings produced a four-factor solution for the black children, but only a three-factor solution for the white children. None of the other cosines for this factor matching exceeded an absolute value of 0.75.

Table 13

Results for Hypothesis 2.5: Cosines Indicating Similarity Among Factor Axes of the Total CBCL Profiles for Ages 6 to 11

Black	Rotated Factor Structure for White Children[a]		
	1	2	3
1	0.1138	0.9893*	-0.0695
2	0.9717*	-0.1061	-0.0832
3	0.0228	0.0832	0.9387*
4	0.2057	-0.0556	0.3271

Note. Kaiser Factor Matching was used to compare the two factor structures.

[a]* represents those cosines at or above 0.80 among the respective factor axes.

2.6 The underlying factor structure of the total CBCL profiles for black children ages 12 to 16 is different as compared to the white children ages 12 to 16 in the sample.

Reported findings in Table 14 are the data related to the testing of the twenty sixth research hypothesis. One cosine which met this criteria was the third axis, at a value of 0.9950, similar to the solution for the 6 to 11 year olds. The other cosines that met the cutoff value of 0.80 were 0.9935 (white axis 1, black axis 2), and 0.9961 (white axis 2, black axis 1).

All of the African American factors were found to be similar. Therefore, it was determined that the data did not support the research hypothesis. The data did not support the claim that black children were different in total CBCL profiles as compared to the white children ages 12 to 16 in the sample. None of the other cosines for this factor matching exceeded an absolute value of 0.75.

Table 14

Results for Hypothesis 2.6: Cosines Indicating Similarity Among Factor Axes of the Total CBCL Profiles for Ages 12 to 16

Black	Rotated Factor Structure for White Children[a]		
	1	2	3
1	0.0756	0.9961*	-0.0460
2	0.9935*	-0.0713	0.0891
3	-0.0855	0.0524	0.9950*

Note. Kaiser Factor Matching was used to compare the two factor structures.

[a]* represents those cosines at or above 0.80 among the respective factor axes.

Conclusions

The comparisons of the underlying factor structures for African American children tested against the normative population yielded data that did not support the research hypotheses. Therefore, most of the conclusions indicated that there were similar underlying factor structures for all age and sex groupings with one exception, girls ages 6 to 11. So the research conclusion for African American girls ages 6 to 11 was that the data did support the claim that there is a difference in the underlying factor structures for total behavior problem scores between African American children and the normative population; in other words, the sample data indicated that there were different underlying behavior problem constructs for African American girls ages 6 to 11 as opposed to the normative population.

The research results from using Kaiser factor matching to compare the total social competence scores indicated that the underlying constructs were similar. Likewise, there was no difference between black and white children for the underlying factor structure for the total behavior problem scores and total CBCL profiles.

Thus, the test results supported the construct validity of the CBCL. In other words, the instrument measured the same constructs for black and white children, but they seem to be in opposite directions in some instances. For example, the ninth normative axis, Schizoid/Anxious, for boys ages 6 to 11 had a negative cosine of 0.8607 with the rotated African American factor structure (see Table 1). This has strong implications for interpretation. While both groups have a similar factor, an inverse relationship exists. Therefore, any comparisons between the groups, such as

differences in mean CBCL scale scores, should take account of this inverse relationship as opposed to accepting the normative solution.

Further research is suggested to investigate other racial groups. Mooney (1984) issued a call for additional research into differences between Caucasian children, and "other" races, with "other" defined as Hispanic and Asian-American. Perhaps by testing the white children against the normative sample, insight might be gained as to whether the research findings in this study are sample specific. That is to say, research is recommended which addresses whether children at the same mental health agency receive the same care, regardless of race.

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APPENDIX A

CHILD BEHAVIOR CHECKLIST FOR AGES 4-18

For office use only
ID #

CHILD'S NAME

SEX ☐ Boy ☐ Girl

AGE

ETHNIC GROUP OR RACE

TODAY'S DATE Mo. ____ Date ____ Yr ____

CHILD'S BIRTHDATE Mo. ____ Date ____ Yr ____

GRADE IN SCHOOL ____

NOT ATTENDING SCHOOL ☐

Please fill out this form to reflect *your* view of the child's behavior even if other people might not agree. Feel free to write additional comments beside each item and in the spaces provided on page 2.

PARENTS' USUAL TYPE OF WORK, even if not working now. *(Please be specific – for example, auto mechanic, high school teacher, homemaker, laborer, lathe operator, shoe salesman, army sergeant.)*

FATHER'S TYPE OF WORK: ____

MOTHER'S TYPE OF WORK: ____

THIS FORM FILLED OUT BY:

☐ Mother (name): ____

☐ Father (name): ____

☐ Other – name & relationship to child: ____

I. Please list the sports your child most likes to take part in. For example: swimming, baseball, skating, skate boarding, bike riding, fishing, etc.

☐ None

	Compared to others of the same age, about how much time does he/she spend in each?				Compared to others of the same age, how well does he/she do each one?			
	Don't Know	Less Than Average	Average	More Than Average	Don't Know	Below Average	Average	Above Average
a. ____	☐	☐	☐	☐	☐	☐	☐	☐
b. ____	☐	☐	☐	☐	☐	☐	☐	☐
c. ____	☐	☐	☐	☐	☐	☐	☐	☐

II. Please list your child's favorite hobbies, activities, and games, other than sports. For example: stamps, dolls, books, piano, crafts, cars, singing, etc. (Do not include listening to radio or TV.)

☐ None

	Compared to others of the same age, about how much time does he/she spend in each?				Compared to others of the same age, how well does he/she do each one?			
	Don't Know	Less Than Average	Average	More Than Average	Don't Know	Below Average	Average	Above Average
a. ____	☐	☐	☐	☐	☐	☐	☐	☐
b. ____	☐	☐	☐	☐	☐	☐	☐	☐
c. ____	☐	☐	☐	☐	☐	☐	☐	☐

III. Please list any organizations, clubs, teams, or groups your child belongs to.

☐ None

	Compared to others of the same age, how active is he/she in each?			
	Don't Know	Less Active	Average	More Active
a. ____	☐	☐	☐	☐
b. ____	☐	☐	☐	☐
c. ____	☐	☐	☐	☐

IV. Please list any jobs or chores your child has. For example: paper route, babysitting, making bed, working in store, etc. (Include **both** paid and unpaid jobs and chores.)

☐ None

	Compared to others of the same age, how well does he/she carry them out?			
	Don't Know	Below Average	Average	Above Average
a. ____	☐	☐	☐	☐
b. ____	☐	☐	☐	☐
c. ____	☐	☐	☐	☐

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1-91 Edition

V. 1. About how many close friends does your child have? (Do not include brothers & sisters) ☐ None ☐ 1 ☐ 2 or 3 ☐ 4 or more

2. About how many times a week does your child do things with any friends outside of regular school hours? (Do not include brothers & sisters) ☐ Less than 1 ☐ 1 or 2 ☐ 3 or more

VI. Compared to others of his/her age, how well does your child:

	Worse	About Average	Better	
a. Get along with his/her brothers & sisters?	☐	☐	☐	☐ Has no brothers or sisters
b. Get along with other kids?	☐	☐	☐	
c. Behave with his/her parents?	☐	☐	☐	
d. Play and work by himself/herself?	☐	☐	☐	

VII. 1. For ages 6 and older – performance in academic subjects. If child is not being taught, please give reason _____

	Failing	Below average	Average	Above average
a. Reading, English, or Language Arts	☐	☐	☐	☐
b. History or Social Studies	☐	☐	☐	☐
c. Arithmetic or Math	☐	☐	☐	☐
d. Science	☐	☐	☐	☐
Other academic subjects – for example: computer courses, foreign language, business. Do *not* include gym, shop, driver's ed., etc. e. _____	☐	☐	☐	☐
f. _____	☐	☐	☐	☐
g. _____	☐	☐	☐	☐

2. Is your child in a special class or special school? ☐ No ☐ Yes – what kind of class or school?

3. Has your child repeated a grade? ☐ No ☐ Yes – grade and reason

4. Has your child had any academic or other problems in school? ☐ No ☐ Yes – please describe

When did these problems start?

Have these problems ended? ☐ No ☐ Yes – when?

Does your child have any illness, physical disability, or mental handicap? ☐ No ☐ Yes – please describe

What concerns you most about your child?

Please describe the best things about your child:

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Below is a list of items that describe children and youth. For each item that describes your child **now or within the past 6 months**, please circle the **2** if the item is **very true** or **often true** of your child. Circle the **1** if the item is **somewhat** or **sometimes true** of your child. If the item is **not true** of your child, circle the **0**. Please answer all items as well as you can, even if some do not seem to apply to your child.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 1. Acts too young for his/her age
0 1 2 2. Allergy (describe): _____
_____
0 1 2 3. Argues a lot
0 1 2 4. Asthma
0 1 2 5. Behaves like opposite sex
0 1 2 6. Bowel movements outside toilet
0 1 2 7. Bragging, boasting
0 1 2 8. Can't concentrate, can't pay attention for long
0 1 2 9. Can't get his/her mind off certain thoughts; obsessions (describe): _____
_____
0 1 2 10. Can't sit still, restless, or hyperactive
0 1 2 11. Clings to adults or too dependent
0 1 2 12. Complains of loneliness
0 1 2 13. Confused or seems to be in a fog
0 1 2 14. Cries a lot
0 1 2 15. Cruel to animals
0 1 2 16. Cruelty, bullying, or meanness to others
0 1 2 17. Day-dreams or gets lost in his/her thoughts
0 1 2 18. Deliberately harms self or attempts suicide
0 1 2 19. Demands a lot of attention
0 1 2 20. Destroys his/her own things
0 1 2 21. Destroys things belonging to his/her family or others
0 1 2 22. Disobedient at home
0 1 2 23. Disobedient at school
0 1 2 24. Doesn't eat well
0 1 2 25. Doesn't get along with other kids
0 1 2 26. Doesn't seem to feel guilty after misbehaving
0 1 2 27. Easily jealous
0 1 2 28. Eats or drinks things that are not food – ***don't*** include sweets (describe): _____
_____
0 1 2 29. Fears certain animals, situations, or places, other than school (describe): _____
_____
0 1 2 30. Fears going to school
0 1 2 31. Fears he/she might think or do something bad
0 1 2 32. Feels he/she has to be perfect
0 1 2 33. Feels or complains that no one loves him/her
0 1 2 34. Feels others are out to get him/her
0 1 2 35. Feels worthless or inferior
0 1 2 36. Gets hurt a lot, accident-prone
0 1 2 37. Gets in many fights
0 1 2 38. Gets teased a lot
0 1 2 39. Hangs around with others who get in trouble
0 1 2 40. Hears sounds or voices that aren't there (describe): _____
_____
0 1 2 41. Impulsive or acts without thinking
0 1 2 42. Would rather be alone than with others
0 1 2 43. Lying or cheating
0 1 2 44. Bites fingernails
0 1 2 45. Nervous, highstrung, or tense
0 1 2 46. Nervous movements or twitching (describe):
_____
_____
0 1 2 47. Nightmares
0 1 2 48. Not liked by other kids
0 1 2 49. Constipated, doesn't move bowels
0 1 2 50. Too fearful or anxious
0 1 2 51. Feels dizzy
0 1 2 52. Feels too guilty
0 1 2 53. Overeating
0 1 2 54. Overtired
0 1 2 55. Overweight
56. Physical problems without known medical cause:
0 1 2 a. Aches or pains (***not*** headaches)
0 1 2 b. Headaches
0 1 2 c. Nausea, feels sick
0 1 2 d. Problems with eyes (describe): _____
_____
0 1 2 e. Rashes or other skin problems
0 1 2 f. Stomachaches or cramps
0 1 2 g. Vomiting, throwing up
0 1 2 h. Other (describe): _____
_____

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Please see other side

0 = Not True (as far as you know) 1 = Somewhat or Sometimes True 2 = Very True or Often True

0 1 2 57. Physically attacks people
0 1 2 58. Picks nose, skin, or other parts of body (describe): _____
_____
0 1 2 59. Plays with own sex parts in public
0 1 2 60. Plays with own sex parts too much
0 1 2 61. Poor school work
0 1 2 62. Poorly coordinated or clumsy
0 1 2 63. Prefers being with older kids
0 1 2 64. Prefers being with younger kids
0 1 2 65. Refuses to talk
0 1 2 66. Repeats certain acts over and over; compulsions (describe): _____
_____
0 1 2 67. Runs away from home
0 1 2 68. Screams a lot
0 1 2 69. Secretive, keeps things to self
0 1 2 70. Sees things that aren't there (describe):
_____
_____
0 1 2 71. **Self-conscious or easily embarrassed**
0 1 2 72. **Sets fires**
0 1 2 73. Sexual problems (describe): _____
_____
_____
0 1 2 74. Showing off or clowning
0 1 2 75. Shy or timid
0 1 2 76. Sleeps less than most kids
0 1 2 77. Sleeps more than most kids during day and/or night (describe): _____
_____
0 1 2 78. Smears or plays with bowel movements
0 1 2 79. Speech problem (describe): _____
_____
0 1 2 80. Stares blankly
0 1 2 81. Steals at home
0 1 2 82. Steals outside the home
0 1 2 83. Stores up things he/she doesn't need (describe): _____
_____
0 1 2 84. Strange behavior (describe): _____
_____
0 1 2 85. Strange ideas (describe): _____
_____
0 1 2 86. Stubborn, sullen, or irritable
0 1 2 87. Sudden changes in mood or feelings
0 1 2 88. Sulks a lot
0 1 2 89. Suspicious
0 1 2 90. Swearing or obscene language
0 1 2 91. Talks about killing self
0 1 2 92. Talks or walks in sleep (describe): _____
_____
0 1 2 93. Talks too much
0 1 2 94. Teases a lot
0 1 2 95. Temper tantrums or hot temper
0 1 2 96. Thinks about sex too much
0 1 2 97. Threatens people
0 1 2 98. Thumb-sucking
0 1 2 99. Too concerned with neatness or cleanliness
0 1 2 100. Trouble sleeping (describe): _____
_____
0 1 2 101. Truancy, skips school
0 1 2 102. Underactive, slow moving, or lacks energy
0 1 2 103. Unhappy, sad, or depressed
0 1 2 104. Unusually loud
0 1 2 105. Uses alcohol or drugs for nonmedical purposes (describe): _____
_____
0 1 2 106. Vandalism
0 1 2 107. Wets self during the day
0 1 2 108. Wets the bed
0 1 2 109. Whining
0 1 2 110. Wishes to be of opposite sex
0 1 2 111. Withdrawn, doesn't get involved with others
0 1 2 112. Worries
113. Please write in any problems your child has that were not listed above:
0 1 2 _____
0 1 2 _____
0 1 2 _____

PLEASE BE SURE YOU HAVE ANSWERED ALL ITEMS.

UNDERLINE ANY YOU ARE CONCERNED ABOUT.